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SOURCE: Vosstanovleniye predpiyatiy chernoy metallurgii, (Reconstruction of Enterprises of Ferrous Metallurgy), published by Giprometz.

Restoration of Southern Metallurgy

From September 1943, when the Donbass was liberated from the Germans, until October 1945, about 3 billion rubles have been invested in southern metallurgy. By January 1946, 25 blast furnaces, 67 open-hearth furnaces, 3 Bessemer converters, 45 rolling mills, 3 pipe-rolling mills, 20 prewar plants, and 70 coke batteries will have been reconstructed and made ready for production.

In comparison with 1940 figures, production capacity in metallurgy will have reached the following level by 1 January 1946: (in percent)

Pig iron	52.8	Coke	47.5
Steel	43.8	Chamotte	50.6
Rolled iron	41.5	Dinas brick	56.5
Pipes	37.8	Iron ore	43.7
(excluding cast iron and welded pipes)		Limestone	38.5

The Five-Year Plan formulated by the Ministry of Ferrous Metallurgy provided that by 1951 the capacity of southern plants will have increased by 1.5 times over the 1940 level.

The Fourth Five-Year Plan contains the following provisions for the development of southern metallurgy:

2. Along with the restoration of plants, there will be a general reconstruction directed toward the elimination of discrepancies and the improvement of production processes (mechanization of charge feeding into blast furnaces, replacement on blast furnaces of the vertical elevators by the skip type, installation of casting machines, increase of the load capacity of charging and casting machines, erection of mixing compartments, electrification of rolling mills, etc.).

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2. The general technical level of enterprises is to be raised by gradual elimination of obsolete and low-capacity units and the introduction of the most up-to-date methods of production.

Particular attention will be paid to increasing the use of agglomerated ore in charges for blast furnaces operating on Krivoy Rog ore. Before the war, agglomerate ore constituted 20 percent of the ore used in the charge. By the end of 1950, that percentage is expected to increase to 45.

It is expected to increase the proportion of scrap in steel smelting shops, to change, wherever possible, the blast-furnace fuel from crude oil to coke, and install thermal insulation and salvage-boilers behind open-hearth furnaces.

Rolled-metal shops are to increase the number of their blooming units, improve the work of their finishing mills, and expand the stores of finished products. Amplidyne control will be utilized on the newly constructed blooming mills at Krivoy Rog and Kerch.

3. During the Fourth Five-Year Plan oxygen blasting will be greatly extended in metallurgical plants. At one plant, a specially designed blast furnace, and an experimental steel-smelting shop consisting of a open-hearth furnace and a Bessemer converter are in process of construction.

4. High-pressure (100 atmospheres) boilers and turbogenerators will be installed at the largest heating plants.

5. To improve the utilization of coke gas in metallurgical plants, and to bring about the gasification of plants of other branches of industry in the Donbass and the Dnepr, it was decided to connect the two areas by gas pipes.

6. Plans have been completed for the restoration and development of the Kamysh-Burinsk iron ore combine which will supply the Azovstal' plant.

Large-scale utilization of the products of magnetic roasting of Krivoy Rog quartzites and concentration of these quartzites at the Lurga installations is planned.

7. To improve the quality of production, especially in connection with the increase of alloy steel output, it is planned to develop thermal shops in southern metallurgical plants, and to improve the finishing tools in rolling shops.

8. New construction and reconstruction of destroyed plants will be carried out with the view of standardizing metallurgical units.

9. The Five-Year Plan for the development of southern metallurgy is based on the assumption that the reconstruction of southern enterprises will be completed in 1947-50. After that, an extensive program of expansion will be initiated.

10. The plan for the development of southern metallurgy is so set up that the reconstruction of auxiliary enterprises (ore, limestone, coke, and refractory materials) will outstrip that of metallurgical plants.

The volume of capital construction during the Fourth Five-Year Plan will exceed greatly the volume capital investment of all previous years.

Among the most debated metallurgical problems is that of the technology of rail metal production. All southern plants producing rails were using Bessemer ingots and were unable to obtain open-hearth metal for rail shops.

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The problem of the quality of rail metal has been frequently discussed but has remained unsolved. In 1944, the NKPS, in planning for a new standard of heavy-type rails with greater hardness and durability, insisted that open-hearth metal be used in the production of rails. In the past, the Gipromet (State Institute for the Planning of Metallurgical Plants) was unable to solve the problem by modernization of existing plants. Now, however, a solution is in sight and the Petrovsk and Dzerzhinsk plants will be converted, either wholly or in part, to the production of open-hearth steel.

Before the war, the Novo-Moskovskiy plant was the largest producer of tin. Obsolete methods of production were used consisting in rolling tin from sheet bars. Despite the large output of this plant, it had no metallurgical base of its own. During the war, the basic equipment of the plant has been shipped east and the plant itself destroyed by the Germans. When tin production is re-established in the south, the most up-to-date methods of manufacture will be employed, and the large sheet mill of Zaporozhstal will be used as a base.

Among the serious shortcomings of the majority of metallurgical plants is the inadequacy of their repair facilities. Plans for the restoration of plants provide for increasing the facilities of existing repair shops and establishing new repair shops.

At the beginning of the war, the Plant imeni Dzerzhinskiy had six blast furnaces with a total volume of 3,898 cubic meters, 12 open hearth furnaces with a total floor space of 483 square meters, and 13 rolling mills producing 220 tons of rolled metal per hour.

A number of metallurgical plants producing high-quality steel suffered serious damage from German occupation and from military operations in areas where the plants were located (Stalingrad). Seven blast furnaces, 33 open-hearth furnaces, two blooming mills, a slab mill, and 17 rolling mills were knocked out of operation. Electrometallurgical assemblies, a number of rolling mills, and forging and stamping equipment were shipped east, assembled there, and for more than 2 years have been producing for the war industries.

Restoration of two plants producing high-quality steel, Krasnyy Oktiabr' at Stalingrad and Stalin Metallurgical Plant in the Donbass, began earlier than that of other ferrous metallurgical plants.

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